traditional religious views. The presumption that the universe wa> directed by a set of CICTIKII and immulublc laws of nature could lead to a deterministic worldview in which God's role wa>* marginalized. What was ultimalcly at slake. \'«mnij argues, were nol philosophical matters as sueh. but lhe authority of lhe Bible. How could lhe supcmalural events of the Scriplurc he bnuight in accordance with new scientific developments? I·rom Newton's natural philosophy a worldview could be derived in which the world depended directly on (iod's benevolence. Vermij argues that this worldview was instnimcntal in achieving u bntad convrnsus that arose in the cighlcenth-century Dutch Republic: lhe mirucles and mysteries of the Bible remained outside the scope of scientific intcqirelations and. on the other hand, supcmalural events were no longer considered credible in diiily life.

Henri Krop cstahlishc% (chapter 9) that in lhe eour5C of <hc eighteenth century a 'Newtonian' philosophical system was taught at the Dutch universities, which included not only natural philosophy, but also a logic and a mclaphysics. The nsc of such a comprehensive academic Newtonianism was unique to the Nelhcrlands. and was distincl from the popul\r*branch' of Newtoniumsm. which in particuliir found expression in physico-theological writings.

Krop focuses mainly on the late cightccnth-century writings of the then inllucnliul natural philosopher Jean Henri van Swinden, p\0'\^}()r al Franckc) and AmMerdam. Van Swinden employed in his metaphysics a Cartesian dualism of the bodily und the irnmatcriul world-The la"cr should be by mathcmiKivs and mc<aphybks,(h« former by

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of the Royal Society of London42. special issue on Newton's Principia and its legacy, edited by D G- King-tlclc and A.R. Hall < I9K«>. pp. 13-34. esp). 14-15.

24. liluygens <o lluddc. *24* Apnl 1688: Aengaende het gcmcltc effect van het dracijcn dcr aerde sal V Fdt. niisMchicn gcMicn hebben't geen onlanghs dacnan gcschrcvcn i* door den Professor Newton in sijn boeck gcnacml Philosophise Naturalis principia Mathcmalica. sldlendc vcrschcyde hypolh- cscs die ick nict cn kan approbcrcn: Nothing is known about Huskies rcccpiion of Newton, since most sources concerning hts life and work are lost. Eor example, we do not know if he owned a copy of rhe Pnncipia. although one is tempted lo think he did. On lluddc, see: R. Vcrmij. BIJdrage tot tie bio-bibliograGc van Johannes lluddc. Gewina. Tijdschrift voor de ^cschicd-cnis dcr gcnccskundc, naluurv dense happen, wiskundc cn tcchiek 18 (1995 >,PP-25-35-

25. Christjaan Huygens. Oevres completes de Christiaan Huygens publiccs par la Socictc Hollandaise des Sciences. *22* vols (The Hague I8K8-I950).vol. 9. p. 267.

death in 1736. Ont of these wa* the basis for the frsl. inaccurate, edition the I vo Letters of Sir Isaac Newton Io Mr. Le CIcre(London 1754).Sec: Le Clcrc to Locke,11 Apnl 1691, in: M. Grazia and M.Smu (cds), Episiohrio. Part *2* <Florence 1991), PP.50-52.

4«. Cf. E. Jorink. "Homblc and blaxphcmou、: l^aac la Peyrdre, *haac* Vo%*ius and the emergence of radical biblical criticism in the Dutch Republic, tn: J. van der Meer and

bcingpromotcd to full professor in I7l2.'s Gravesandc was also appointed professor in philosophy in 1734.

X7. WJ.'s Grave Miitde. De niathescos in omnibus scicntiis praecipuc in physic is usu (Leiden 1717), p. 14.

88. lb idem.p. 16.

X9. 's Grave«amic, Phy^iccs (1719-1721). vol. I.Pracfatid. sig *3. See also the Dutch translation by J. Engclinan, Wiskundige ^rondbcginsclcn dcr natuurkund« [.] otic inleiding fol de ncuioniaanM: wysbegeerte (l743>.Voorredc:'AI wic de schriften [.] over de naiuurkundc (-] vergekken Ixcft. zal naulyks in twvyfcl kunen trekken of met dicn naam worden gchccl vcrschillcndc wetcnschappcn bedoeld, tc:wyl ze alien vcrgeven dcvvaarc oirzaak dcr naiuurlyke vcr\chyn*clcn tc onvouducn On kngelman, see R. van Raak, De snccuwihcologic van Jan Engel maar. IPcn poging tot c.n ncutoniiuinsc wijsbcgccrte, (icschiedenis van de uijsbegecrtc tn Nederland 7 (1996).PP- 99-116.

90. P. <lc Clcrcq, Al lhe sign of the oriental lamp: the Musschcnbrock workshop in Leiden. 1660-1750 (Rollcrdain 1997). PP. 73-102.

91. G. V.Sutton. Scicnvc lor a polilc society: gender, culture and the dcmvnilralion of rnli^htcnmcnl (Bouldei 1995). PP. 213-232.

92. R. E. Schofield. The Hnlighienment of Jowrph I'riolley: a siudy in hi、life and work from 173J to 1773 (University Park, PA 1997), P. 24.

93. A bibliogritphy can be found in: De Paler. Wcl/ijn. uysbejsecrltf en wctcnschap (note 85). p. I52.TWO translations were made by fonner students of's Gravexinde: a French translation by Elie de Joncourt. prolesM*T in Boidc-duc. was issued in 1743-1 ?46 and *a* Dutch translation by Jan Engclnian.a physician and leader of the Haarlem Natuur*en Sterrenkundig Collcgic. was published in 1743. Work on (he Dutch edition stalled, however, and Ihe^econd volume was never published, probably due to a disappomting tiimovcr. This is perhaps» an indication of a lack of interest in the malhc- matical approach of Newtomanism among most Dutch

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IlJ.Zuidcrxaafl.^llet Natuurbccld van Joh;mncs de Mey (1617-1678), hooglcrsuar flow fie aan de lllustcrc School tc Middclburg*. Archicf Mcikxlclingcn van het Koninklijk Zeews <>cnotx>chap dcr Wctcnschappcn <200". Pp. I -4<>; Van dcr Wall,*Ncwionumism and religion in lhe Netherlands* (note 42K Jonnk. Reading ttc Book of Nature (note 5).

96. J. Ray, De wcrclt van haar begin lol haar cindc. ofiiry natuurkundige godge iccrdc rcdcncnngcn (Rollcrdam I696>.

97. Jacques Lufneu had finished his study at Leiden University in I7IK and Ahraham van Loon in 1720.

9H. Cf. Baillon.'Early cighlccnth-ccntury Ncwtonianism' (note 65>. Pp. 533-54K. 9^. Cf. G. Ronmi.Lockc ct *on iraduclcur fran^ais Pierre Costc, avcc Suit lettres inedite» de Costs a Lotzke., Revue de lillcraturc compardc 33 (I959>. PP.161-179; G.AJ. Rogers. S.Hutton and . Schuumian.'Pierre Cwsle. John Lncke. and lhe Third Earl of Shaftesbury'. in:S.Hution and P. Schuurman <cds). Studies on Locke: sources, conicmporancs. and legacy. International Archives of the Hisioiy of ldca&;Archives Intcntalionalcs d'llistoirc des Idccs, nc. 197 (Dordrecht 20O8X

IOO.S.Schafler.'Glas>> works: Newton's prisms and the uses of experiment', ini D.Gooding. Trevor J. Pinch and S. Schaller (cds). The uses ofexpertment:studies in tc natural lienees (Cambridge 19K9). p.96.

101 .'The printing date is marked at the end of volume *2.* Dcbaguhcn»' assislarKC is credited in lhe author's preface.CfL Newton. Trail* d'optiqucsur les reflexion», refractions, inflexions, et les coulcura. de la lumere (..JJtnMluit de I'anglois par M. Costc <>ur la M^ondc cdiliun. uugnenlcv par l'au-<eur <Am>Urdum: Pierre Humbert 1720).

102. GOMC. 'Pretace du traduclcuf in: Newton. Tniitc d'opliquc (note lol kxxii-xm.

103. Baill<»n.*Larly cightccnlh'ccnfuiy Newtonian ism' (note 65).

104. A nice cxumplc is the Mcnnonite David van Mollcm. who used physical principles in his silk iactory. A family* portrait of Van Mollcm is adorned with scientific instnimcnU,

S. Mandelbrote <eds). Nature aftd Scripture in the Abrahtnic religiorv:: up to 17<>o (Leiden 2009>. PP. 429-450; Jurink and Van Micrt. Isaac Vossius (note 31).

49. Vcrmij. Amstcrdain mathematical amateurs' (n(>te 29). pp. 196-199.

50. Bibliothequc universelie 8 (I6XK). On the authorship of lhe review sec:James L. Axtell. Locke's review of tlu: Pnncipia, Notes and records of the Royal Society of London 20:1 (1965).PP. 152-161. On Locke's impact on continental Kuropc. sce:J. Israel. Enlıghlcnmıml

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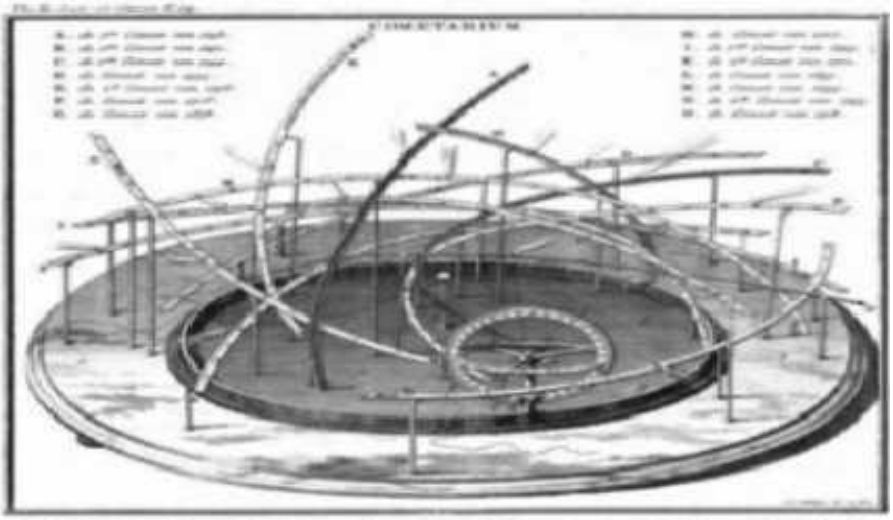

Fig. 8: Nicolaas Struyck's three-dimensional 'Cometarium', designed and built in 1745 to check Newton's gravitational theory on comets. (Source: Struyck).

Dutch translation uf Ncwt-on's adaptation of Bernhard Vurcnius' Gcogruphiu gcncralb. [1] *'* Struyck was not the only Dutchman fascinated by cornels. In lhe years leading up to the expected return of llalLcy*s Comet, which, when it came, was seen by contemporaries as a triumph for Newton's gravitational theory, several Dutch enthusiasts partici.ated in the search for astronomical discovcries. The surveyor Dirk Klinkenberg, living in Haarlem anti la<cr in 'The Hague, was not only a very successful astronomical obs^rrsier (he independently observed at least fi Accn ccMncts. five of which as the In»l recorded observer). bu« was SIIMI a skilled mathcmatieiun. In 17S5 he published a search table and map. in which he calculated. Ibr every month in I he years Io come, which part of the night sky Halley's Comet would appear in. This initiative was the first of its kind in liuropc. However, soon uAcrward>, ihis was irnitaled in several other countnc3>.2 Intrigued by the same event, and on «he basis of Ncwlon's gravitational theory, the wine merchant Jan Sehim from Maa^luis tried lu calculutc the possible perturbations on the comet's orbit caused by the larger planets, concluding that the comet*» orbit could be changed considerably. 23

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1 he Ilulch univerMlies

Meanwhile, in the Dutch Republic 'Newtonianism' had become a synonym for 'experimental philosophy. Iliis meant that other accents could be incorporated. As De Paler has noted. Petrus van Musschcn^ brock (1692-1761). who graduated from Leiden in 1715.

Amsterdam and Groningen, did *o too. They all iden tilled Newtomunism* w itli experimental ptıyNicü, cmpınciüm and even naturul hi'itoryJ The scientific enterprise ax >ucli also bccumc an instruincnl of natural theology.